TC-1048

INTERNATIONAL ATOMIC ENERGY AGENCY
DIVISION OF RADIATION AND WASTE SAFETY

Technical Committee Meeting on
the Transport Safety Databases

IAEA Headquarters, Vienna
20-24 October 1997

CHAIRMAN's REPORT

K.B. Shaw
(United Kingdom)

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Chairman's Report
Technical Committee Meeting on the Transport Safety Databases
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1. Introduction

The Technical Committee Meeting on Transport Safety Databases (TCM-1048) was held at the International Atomic Energy Agency's Headquarters in Vienna 20-24 October 1997.

The meeting was attended by 25 participants from 17 Member States and one International Organization. A list of participants is available in Appendix 1.

Appendix 2 contains the text of opening remarks made by Mr. A.J. González, Director, Division of Radiation and Waste Safety. Appendix 3 contains the text of the chairman's welcoming remarks.

Following the recommendations of the Transport Safety Standards Advisory Committee at its second meeting (TRANSSAC-II) the main objectives of the meeting (see Appendix 4) were to:

1. obtain information from Member States and international organizations about their current and future data collection activities, capabilities and information needs regarding transport events, radioactive material shipments, and radiation exposures from transport operations; and
2. provide recommendations to assist the Agency in further developing its transport safety databases on events (EVTRAM), radioactive material shipments (SHIPTRAM) and radiation exposures (EXTRAM).

The TCM agreed to include these recommendations in its terms of reference. In order to assist the TCM to meet these objectives, participants provided written and oral reports on their current transport data collection activities and on their future plans in this area.

2. Background

The Agency has collected relevant data on the transport of radioactive materials over a number of years. The Package Approval Certificates (PACKTRAM) database, which provides a listing of packages available to transport specific radionuclides, has been successfully developed and is widely used. The databases on events (EVTRAM), shipments (SHIPTRAM) and radiation exposures (EXTRAM), are subject to different levels of development and use. EVTRAM is at a more advanced stage of development and an example of its application is the subject of TECDOC 966 "Review of events occurring during the transport of radioactive materials for the period 1984-1993".

In order to make the best use of resources and to take account of current knowledge and systems it was necessary to review the future development and application of the three databases, EVTRAM, SHIPTRAM and EXTRAM. Important inputs to this work were the results from previous consultant services together with advice on, and experience with Agency database standards and developments. The current and future transport data applications by Member States and by international organizations were also of major benefit to the TCM.

3. Working procedures

The TCM agreed to follow the agenda as contained in Appendix 5.

Papers that were prepared for use by the TCM were classified as being either Working or Information Papers. Working Papers contain recommendations that were reviewed for acceptance by the respective Working Groups. Information Papers provided historical or additional information that did not necessarily need to be acted upon by the Working Groups. A list of all papers prepared for and distributed at the TCM is available in Appendix 6.

The Technical Committee Meeting was divided into three phases. Initially there were presentations and discussions on relevant standards for database development and on the experience gained from previous and current work within the Agency. In particular, Mr. J. McLellan provided comprehensive information on the development of the PACKTRAM database and Mr. P. Eyre described the development of the EVTRAM database.

The second phase consisted of presentations by Member States and international organizations on their transport data experience and future plans in this area. Reports were given to the meeting by all Member States participating and by the European Commission.

Thirdly the meeting discussed the future direction of the three databases EVTRAM, SHIPTRAM and EXTRAM. Three Working Groups were formed to assist with this work. Mr.G.Schwarz led the Group on EVTRAM, Mr.S.Trivelloni led the SHIPTRAM Group and Mr.M.Cosack the Group on EXTRAM. The Working Groups made use of the results of previous consultant services, working and information papers provided by Member States in preparation for the TCM and discussions during plenary sessions. The Working Groups were advised that the aim of their work was to recommend the data, applications and resources required to achieve transport safety evaluations: the current objective was not to provide information for full risk assessments. The importance of realistic goals was stressed, as was the need for caution in the quantity of data to be requested: the quality of the data was most important.

The first and second phases of the meeting were addressed in plenary sessions. The third phase was addressed in both working group and plenary sessions; plenary sessions were used to obtain progress reports on working group work, as well as to provide a forum for achieving consensus for items upon which a Working Group could not reach agreement or needed further guidance. A summary of discussions held at plenary sessions is available in Appendix 7.

An expression of gratitude is owed to everyone who contributed to the success of the meeting. Special thanks are due to those who acted as Working Group Leaders and Secretaries. Also, thanks are due to the Secretariat for facilitating the work of the meeting, keeping notes as the meeting progressed and in helping to compile this report.

4. Member States' experience in data collection and application

Fifteen Member States described their experience in data collection and application. A summary of those presentations as they directly relate to the Secretariat's data collection work is provided in Appendix 8.

The level of data collection by Member States is variable but much useful data was provided on transport events, shipments and radiation exposures. The competition for scarce resources is frequently a factor inhibiting greater effort on transport databases but many Member States intend to expand their activities in these areas.

Transport event data were presented by most Member States. The aims of such work included the benefits of lessons learned, the provision of information, the possible identification of weaknesses in transport operations and the identification of trends.

Data on transport shipments were presented in detail by Italy where such reporting information is a legal requirement. Other Member States reported that data concerned with the nuclear fuel cycle were available, but there were difficulties associated with data collection in other transport areas.

Radiation exposures from transport operations were reported by several Member States. Critical groups had been identified within the general public and their radiation exposures assessed. The radiation doses to workers were obtained from personal dosemeter records: the highest exposures were frequently to driver/handlers delivering packages of radioactive material for medical use.

The presentations by Member States showed that there was significant ongoing work associated with transport events, shipments and radiation exposures. Data that was not heretofore published, could be used for the Secretariat's databases.

5. Objectives of and recommendations on database development

5.1 Event database EVTRAM

It was agreed that the objectives of this database were to :

- assess the efficacy of transport regulatory standards,
- enhance the implementation of the Agency's Transport Regulations,
- provide factual data to help meet public concerns,
- provide data for future regulatory revisions, and
- allow full use to be made of lessons learned.

It is recommended that the EVTRAM database be continued with, in the longer term, some modifications to improve the information on emergency response and to clarify some of the requirements. Member States should be encouraged to regularly participate in this activity. The full recommendations on this database are given in the report on the EVTRAM database in Appendix 9.

In summary it is recommended that in 1998:

- the Agency write, requesting their cooperation, to the Member States that have expressed interest in the computerised input program test phase,
- that a reminder letter be sent to Member States asking for the identification of a single point of contact with responsibility to report on event data together with a request for the regular reporting of events,

- Member States assistance be sought for assistance in the computerised data input program development and help-function development, and
- the Agency distribute the authorised data input program to all Member States,

In the longer term it is recommended that:
- the transport event reporting form be revised subject to approval by TRANSSAC,
- the data input program be updated according to the revised form, and re-distributed to the Member States for use
- the transport severity scale be developed using the results of work currently in progress, and
- consultant services be used to review the data at an appropriate time.

5.2 Shipment database SHIPTRAM

It was agreed that the objectives of this database were to:
- demonstrate the efficacy of the transport regulations,
- provide support for the transport regulatory revision process,
- provide factual data to help meet public concerns,
- identify trends,
- support compliance assurance, and
- provide data for transport assessments.

It is recommended that the SHIPTRAM database should be restarted with emphasis on data concerned with package type, mode of transport and Transport Index; further information depends upon its availability in Member States. Clear definitions are recommended to assist with this activity. The full recommendations on the SHIPTRAM database are given in Appendix 10.

In summary it is recommended that in 1998:
- consultant services be used to further develop the data input requirements, and
- Member States that have expressed an interest should be contacted to test the data input form.

Once the above activities have been successfully completed then,
- the Agency should request data from Member States, preferably for the year 2000, and
- Member States should submit data to the Agency which should then use consultant services to review and report on the data.

5.3 Radiation exposure database EXTRAM

It was agreed that the objectives of this database were to:
- assess the effectiveness of the transport regulatory standards,
- provide factual data to help meet public concerns,
- provide data for future regulatory revisions, and
- facilitate the exchange of information on methods of collecting and evaluating transport exposure data.

It is recommended that the EXTRAM database be restarted with an improved format. The most useful data has been identified and a fresh system proposed for data collection. The full recommendations on the EXTRAM database are given in Appendix 11.

In summary it is recommended that in 1998:

- the specification for exposure data as detailed in the Working Paper No.14 Rev.2 be put to TRANSSAC-III for approval,
- consultant services be used to finalise the reporting format and prepare covering communications, and
- the Agency requests data for a single calendar year from Member States to be submitted to the Agency by December1999.

Once sufficient data has been received the data should be analysed and a report prepared using consultant services.

6. Future plans

It is recommended that priority be given to the continuation and improvement of the EVTRAM database. The SHIPTRAM and EXTRAM databases should be relaunched within the next year.

The EVTRAM database will require some continuing external support to develop and maintain the systems. The SHIPTRAM database will require consultant services to develop the data requirements and handling systems. The EXTRAM database will also require consultant services to fully prepare input forms, other documentation and examples. The maintenance of this database will be less demanding in terms of resources than that required for the other two databases.

It is recommended that adequate resources be provided by Member States for testing relevant systems and for data input, and by the Agency for the maintenance and development of the databases. The services of consultants with relevant knowledge will be required throughout these developmental stages.

During the development of these three databases, it is recommended that consideration be given to linking the information in the databases so that more comprehensive information can be obtained.

7. Recommendations for TRANSSAC-III

The Technical Committee Meeting requests TRANSSAC at its third meeting in May 1998 to support the following recommendations:

1. Work should continue on the three databases EVTRAM, SHIPTRAM and EXTRAM;
2. The EVTRAM database should continue to be developed and data be requested preferably annually. The data input requirements should not change in the short term; it is important to test the data input program internationally prior to distribution to Member States for use;
3. The SHIPTRAM database should be re-launched within a year with fresh requirements for data input; consultant services are required to further develop data input documentation. Such data input systems will require testing before all Member States are requested to provide data;
4. The EXTRAM database should be re-launched in 1998 in a new format as detailed in this report. Consultant services are required to finalise the input documentation and covering

communications. Input data should be requested from Member States to reach the Agency by December 1999; and

5. The Agency be recommended to provide sufficient resources to develop, maintain and report on these three databases.

Appendix 1
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Appendix 2
OPENING REMARKS

Mr. A.J. González
Director, Division of Radiation and Waste Safety

Good morning, Ladies and Gentlemen.

On behalf of the Director General of the IAEA and the Division of Radiation and Waste Safety, it is my pleasant task to welcome you to Vienna and, especially, this Technical Committee meeting on the Transport Safety Databases.

The development of databases has been one of the activities in the transport safety programme for many years. Its pursuit by the Secretariat has traditionally received the support of the transport safety advisory body, formerly SAGSTRAM and since 1996 TRANSSAC. It has been possible to bring two of the databases to a fully operational stage characterized by annual data exchange and report preparation. Such activities are fully in line with the Agency's function of fostering the exchange of scientific and technical information on the peaceful uses of atomic energy.

With the recent increase in public awareness and expression of concerns about transport safety, it is becoming more and more important for governments and the international community to be able to provide factual information concerning the safety of radioactive material transport. National reports abound about individual shipments, incidents and material flows from which it is possible for other countries to glean lessons learned or which can be synthesized into broader sources of information which are valuable to show the world-wide status of these activities.

In the 1980's the Secretariat presented a paper at a PATRAM symposium that gave an indication of the extent of radioactive material shipments worldwide. This data was based on a non-scientific extrapolation of hard data, intuition and educated guessing. There are several national reporting systems that collect data about various aspects of radioactive material transport. From these systems, there are generated national reports about the various aspects of radioactive material transport. But there has yet to be an international report that presents an overview of significant shipment information from worldwide sources. Such a report will confirm that the IAEA's transport Regulations provide for a high level of safety in the transport of radioactive material and it will provide governments with accurate reliable data for responding to inquiries, assist in transport safety analyses and help to instill confidence in the public that the transport of radioactive material is safe.

With the publication in 1996 of the newest edition of the IAEA's transport Regulations ST-1, stronger emphasis needs to be placed on the implementation aspect of the Agency's transport safety program. Transport safety databases are very important tools for providing information in support of changes to the Regulations and their implementation. The IAEA can co-ordinate international work in data collection so that it is possible to compile the documentation in a manner which provides Member States and international organizations with consistent information reflecting world-wide experience.

The Secretariat looks to you for advice on how transport safety data should be collected, managed and utilized in the best practical way. Specifically we seek your advice on data regarding events, shipments and radiation exposures because it is precisely such data that can tell us how effective the Regulations are. I note from some of your working papers that Member States plan positive action that will help to ensure that international data exchange in the transport safety arena will succeed. In the Secretariat there are resources to achieve further progress, and experience in other Agency programs (INES, IRS) is available and should be used in support of your work this week.

Ladies and gentlemen you have a busy week ahead of you; but you also have an able Chairman in Mr.Ken Shaw who brings for the benefit of this meeting his excellent background in radiological protection and many years' experience in international co-operation for radioactive material transport. Your Working Group Leaders and Secretaries have also been selected for their qualifications and experience. Each of you is an expert on the subject of the meeting. Therefore, I am confident that your TCM will be able to develop a realistic programme of action that will help us obtain significant data to enable the preparation of reports that document the results of our safety objectives.

Lastly, I hope that it will be possible for you to find some time to enjoy this beautiful city on the Danube.

Appendix 3
WELCOME REMARKS

K.B. Shaw (NRPB Chilton)
Chairman

Thank you Mr. González for your welcome and for the helpful remarks on our work during this week. The Agency's role in the regulation of radioactive material transport is paramount but it is clear that we must involve others and further develop transport databases.

Ladies and Gentlemen,

I also wish to welcome you to this Technical Committee meeting on the Transport Safety Databases. It is a pleasure to see experienced colleagues from many countries and also new faces. For the success of our work we need the combination of lengthy experience together with fresh views.

I would like to start by thanking the Secretariat for preparing the initial material for our meeting.

The Transport Safety Standards Advisory Committee (TRANSSAC) recommended that the objectives of this meeting be to:

- obtain information from Member States on their data collection activities related to transport events, shipments of radioactive materials and exposures from transport operations,
- provide recommendations to assist the Agency in further developing its databases, EVTRAM, SHIPTRAM and EXTRAM.

In basic terms we are here to say what we are all doing with regard to the collection and use of transport data and, to assist the Agency in its development of transport safety databases.

The EVTRAM database has been supported by Member States and has been developed over a number of years. It has been generally well received and now needs further guidance. SHIPTRAM is less advanced but there is some encouraging work in some Member States: we should use such experience. EXTRAM has not moved very far but we must remember the requirement in SS No 6 and in ST-1 that the relevant competent authority shall arrange for periodic assessments of the radiation doses to persons due to the transport of radioactive material.

Returning to events during transport, we are all aware of the media interest in this area. In the UK a few months ago, one of the more respected Sunday newspapers had the front page headline "Airline poisons passengers with radiation". This event involved an incorrect package for medical use imported to the UK. The effects of this event are still apparent and I am sure that we will hear more during later presentations.

We must make full use of the experience gained from work on PACKTRAM and from other work within the Agency. We will have a number of useful presentations later in our sessions. Let us learn from such experience. There are a number of consultants reports included in our information papers and we should take careful note of such work.

The objectives of the data collection need to be clearly identified and the specifications for such work clearly provided. We must seek a consensus in these areas. Why do we need the data and how will it help us? In this regard I would draw your attention to our Working Paper No. 3 on the results of a survey of Member States transport safety data needs and availability.

The Agency and Member States have limited resources and we must be sure that we are being realistic in our proposals. Data collection activities are time consuming and checking data is important. We must not underestimate the effort involved. However, we must recognise that the transport regulations do require us to put effort into this area.

We are all aware that radioactive materials come close to members of the public during the transport of such materials. The transport record is good but we need to be able to demonstrate this.

I look forward to learning about Member States' experience in these areas, to our discussions on these topics during this week, and to a successful conclusion to our work.

Appendix 4
TERMS OF REFERENCE

Following recommendations of the Transport Safety Standards Advisory Committee at its 2nd meeting held 10-14 March 1997 (TRANSSAC-II), the main objectives of this Technical Committee Meeting are:

1. to obtain information from Member States and international organizations about their current and future data collection activities, capabilities and information needs regarding transport events, radioactive material shipments, and exposure from transport operations; and
2. to provide recommendations to assist the Agency in further developing its transport safety databases on events (EVTRAM), radioactive material shipments (SHIPTRAM) and radiation exposures (EXTRAM) databases.

To carry out the TCM's objectives participants will be invited to present both written and oral reports on their respective transport data efforts relating to events, radioactive material shipments and radiation exposures, and future plans in this connection. The Agency will present a review of its relevant experience and the results of these activities.

It is noted that the Agency's EVTRAM database is at an advanced stage of development characterized by a data input form that has been used by Member States since 1990 as a basis for providing events data, and that a first report demonstrating possible statistical analyses for international events data is available. However, the level of reporting from Member States needs to be raised so that the EVTRAM database can achieve the distinction of containing truly significant data to allow meaningful statistical analyses and further scientific and technical applications. The TCM's deliberations regarding the EVTRAM database will therefore focus on:

1. reviewing the objectives of EVTRAM as a source of information for continued development and maintenance of the Agency's transport Regulations and the feasibility of using EVTRAM data in transport risk assessments,
2. reviewing the use of the data input form (including evaluating the need for each data field) to ensure a consistent and uniform understanding of the data fields,
3. improving the instructions for completing the data input form so that data collected in the future is prepared on the basis of a consistent and uniform understanding of the data fields,
4. reviewing the user-interface tool, the data input program, with which Member States can be encouraged to prepare data for submission in electronic form to the Agency, and
5. preparing recommendations for an Agency action plan for continued development of EVTRAM towards wider-based data collection and regular reporting.

For SHIPTRAM, the radioactive material shipments database, a data collecting activity undertaken for the calendar year 1990 resulted in not more than an administrative report. SHIPTRAM remains at a preliminary stage requiring a redefinition of its objectives, scope and methodology. The Italian competent authority has offered the experience of its TRARAD database for use as a possible model for international reporting. The results of a recent Agency survey indicate the types of shipment data that Member States are able to provide. Hence, the TCM deliberations will focus on:

1. reviewing the objectives of SHIPTRAM as a source of information for continued development and maintenance of the Agency's transport Regulations and the feasibility of using SHIPTRAM data for transport risk assessments,
2. identifying the data that is most feasible to collect from Member States to meet the defined objectives,

3. reviewing the user-interface tool of the TRARAD database and Italian competent authority shipment reports and discussing possible adoption for international reporting purposes, and
4. preparing recommendations for an Agency action plan for continued development of SHIPTRAM towards wider-based data collection and regular reporting.

For EXTRAM, the database on exposures from transport operations, a data collective activity undertaken for the calendar year 1990 gleaned meagre results. There are indications that, although exposures data are needed for evaluating the radiation safety of radioactive material transport, it is potentially the most difficult to obtain. The results of a recent Agency survey indicate the types of exposure data that Member States are able to provide. The TCM is requested to:

1. review the objectives of EXTRAM as a source of information for continued development and maintenance of the Agency's transport Regulations and the feasibility of using EXTRAM data for transport risk assessments,
2. identify the data that is most feasible to collect from Member States to meet the defined objectives,
3. specify the methods by which such data is to be collected to ensure that international reporting bases, when achieved, is at a consistent and uniform level, and
4. prepare recommendations for an Agency plan for continued development of EXTRAM towards wider-based data collection and regular reporting.

To facilitate the discussions at the TCM, it is intended that Working Groups will be formed to address each of the databases.

The TCM will prepare a report of its deliberations, which will be tabled for discussion at the next meeting of TRANSSAC in 1998.

Appendix 5
AGENDA

Meeting opens at 9:00 a.m. on Monday 20 October

1. Opening of the meeting	Mr. A.J. González, DIR-NSRW
2. Statement by the Chairman	Mr. K.B. Shaw, UK
3. Administrative information	Mr. L.G. Blalock, NSRW
4. Adoption of the Agenda (WP1/Rev.1)	Mr. K.B. Shaw
5. Terms of reference (WP 2)	Mr. L.G. Blalock
6. 10:00 hrs. 20 Oct. Presentation on NSRW standards for database development	Mr. M. Crick, NSRW
7. 11:00 hrs. 20 Oct. Presentation on International Nuclear Event Scale	Mr. B.Thomas, NSNI
8. Reports on transport data experience and future plans	All attending delegations
9. Presentation on IAEA transport data collecting experience	Ms. M.T.M. Brittinger, NSRW
10. Presentation on PACKTRAM database development	Mr. J. McLellan, Canada
11. Presentation on EVTRAM user-interface program	Mr. P. Eyre, Canada
12. Discussion on Member States experience in providing data to the EVTRAM databasee	All attending delegations from: Member States and International Organizations
13. Presentation on TRARAD user-interface program and Italian competent authority shipment reports	Mr. S. Trivelloni, Italy
14. Formation of working groups	EVTRAM: Mr. G. Schwarz SHIPTRAM: Mr. S. Trivelloni EXTRAM: Mr. M. Cosack
15. Plenary sessions to review Working Group progress, as required	Mr. K.B. Shaw
16. Plenary session to receive Working Group reports	Mr. K.B. Shaw
17. Draft of Chairman's report	Mr. K.B. Shaw
18. Any other business	Mr. K.B. Shaw Mr. L.G. Blalock

Coffee breaks: 10:30 - 11:00 and 15:30 - 16:00
Meeting closes at noon on Friday, 24 October

Appendix 6
LIST OF WORKING AND INFORMATION PAPERS

WORKING PAPERS

WP 1 Provisional Agenda *(General)*

WP 2 Terms of Reference *(General)*

WP 3 Survey of Member States to determine Transport Safety Data Needs and Availability *(General)*

WP 4 UNITED KINGDOM Comments from UK on use of EVTRAM data input form *(EVTRAM)*

WP 5 ARGENTINA -Transport Safety Data Base: a Compliance Assurance Tool used by the Nuclear Regulatory Authority *(General)*

WP 6 CZECH REPUBLIC - Status of Transport Data Collection and Reporting *(General)*

WP 7 BRAZIL - Comments on Database Attributes-Requirements & Recommendations for Improvements *(EVTRAM)*

WP 8 BRAZIL - Comments on Objectives and Recommendations to Improve Data Collecting *(SHIPTRAM)*

WP 9 ITALY - TRARAD The Italian Database for radioactive material shipments *General)*

WP 10 ITALY - Data Collection Activities in Italy *(General)*

WP 11 FRANCE - Participation of France in the three IAEA Data Bases - EVTRAM, SHIPTRAM and EXTRAM *(General)*

WP 12 Report of CS-69 - CSM to Review the PACKTRAM Database System Program *(General)*

WP 13 CHINA - Transport Data Collection Activities in China *(General)*

WP 14 Report of Working Group No. 3 - EXTRAM Database
WP 14, Rev. 1
WP 14, Rev. 2 - Final

WP 15 Report of Working Group No. 1 - EVTRAM Database
WP 15, Rev. 1
WP 15, Rev. 2 - Final

WP 16 Report of Working Group No. 2 - SHIPTRAM Database
WP 16, Rev. 1
WP 16, Rev. 2 - Final

WP 17 Chairman's Draft Report

WP 18 Summary of Discussions at Plenary
WP 18, Rev. 1 - Final

INFORMATION PAPERS

IP 1 Excerpt from Report of the 2nd Meeting of the Transport Safety Standards Advisory Committee, TRANSSAC, 11-14 March 1997 *(General)*

IP 2 IAEA TECDOC No. 966 - "Review of Events Occurring During the Transport of Radioactive Material for the Period 1984-1993" *(General)*

IP 3 Proposed outline for TCM-1048 Working Group Reports *(General)*

IP 4 Excerpt from Joint IAEA/NEA Incident Reporting System Guidelines *(General)*

IP 5 Report of CS-79 to analyze EVTRAM, SHIPTRAM and EXTRAM data, 22-24 November 1993 *(General)*

IP 6 Report of CS-95 to prepare draft TECDOC on EVTRAM database, 8-10 November 1995 *(EVTRAM)*

IP 7 Report of CSM-78 to review the data submitted to the IAEA's database on events in the transport of radioactive material (EVTRAM), 29-31 October 1990 *(EVTRAM)*

IP 8 Excerpt from the User's Manual of INES: The International Nuclear Event Scale *(EVTRAM)*

IP 8, Add. 1 Procedure for Evaluation of the Consequences to Safety of Nuclear Events

IP 9 Administrative report on the SHIPTRAM Database *(SHIPTRAM)*

IP 10 Report of CS-48 to review the Italian TRARAD database for radioactive material shipments, 13-15 June 1994 *(SHIPTRAM)*

IP 11 Report of CSM to examine and analyze Member State returns for the SHIPTRAM and EXTRAM databases, 18-20 November 1991 *(SHIPTRAM)*

IP 12 POLAND - Information about current data collection activities of the Polish Competent Authority regarding the transport safety databases *(SHIPTRAM)*

IP 13 BRAZIL - Data Collecting Experience and Future Actions *(General)*

IP 14 JAPAN - Availability and Present Status of Data Collection of Transportation of Radioactive Materials in Japan *(General)*

IP 15 RUSSIAN FEDERATION - Short Description of the Automated Information System "Certificates"

IP 16 Development of an Event Severity Scale for Transport Accidents and Incidents

IP 17 NETHERLANDS - Data on RAM Transports in The Netherlands Relevant for SHIPTRAM and EXTRAM Databases *(SHIPTRAM & EXTRAM)*

IP 18 USA - Status of Transport Safety Databases in the United States in Relation to possible Contributions to EVTRAM, SHIPTRAM, and EXTRAM *(General)*

IP 19 CANADA - Data Entry Processor Program *(EVTRAM)*

IP 20 GERMANY - Transportation of Radioactive Materials in Germany *(General)*

IP 21 UNITED KINGDOM - Activities Regarding Transport Databases *(General)*

Appendix 7
SUMMARY OF DISCUSSIONS AT PLENARY

Monday, 20 October and
Tuesday, 21 October

The Technical Committee Meeting was opened on Monday 20 October by Mr. A.J. González, Director of the Div. of Radiation and Waste Safety. He described the nature of recent important resolutions:

1. the Resolution relating to Transboundary Movement of Radioactive Waste and Spent Fuel, adopted by the Diplomatic Conference on the Joint Convention on the Safety of Radioactive Waste Management, and
2. the Resolution on the Safety of Transport of Radioactive Materials

and emphasized that the Agency will be working quickly to prepare the report called for in the General Conference resolution. A copy of his prepared remarks is included in the Chairman's Report.

The Technical Committee addressed the items of its agenda involving presentations from the participating delegations and the Secretariat in the agreed order (see Working Paper 1 Rev. 1) through noon on Tuesday 21 October. Member States provided significant data on their current and future data collection activities.

Working Groups were formed as follows:

NO.	DATABASE	LEADER	SECRETARY
1	EVTRAM	G. Schwarz (Germany)	N. Barton (UK)
2	SHIPTRAM	S. Trivelloni (Italy)	J. Cook (USA)
3	EXTRAM	M. Cosack (Germay)	M.E. Wangler (USA)

and they took up their respective tasks on Tuesday afternoon.

Wednesday 22 October 1997

Plenary reconvened at 1105h.

Messrs. Schwarz, Trivelloni and Cosack summarized the discussions that had transpired thus far in their respective Working Groups. Discussions ensuing after each presentation are outlined in the following paragraphs.

For EVTRAM database

The Working Group noted that there was no information in the data input form regarding the corrective actions taken in line with emergency response actions, and that it may be necessary to modify the data input form accordingly. Suggestions from Member States regarding further changes were also discussed in the Working Group. Mr. P. Eyre confirmed that incorporating such additional data into the data input program would not present significant problems.

Mr P. Eyre called the attention of Plenary to the fact that there was potential for confusion in the use of the data input program and a more lengthy explanation in a published guidance document would be needed.

Plenary was requested for advice regarding the EVTRAM severity scale. Concerns had been expressed that the use of that scale may cause confusion with the INES scale because of the similar numerical rating. It was emphasized that the INES scale was intended to provide public information and the EVTRAM severity scale was intended more for technical information exchange. Differing ideas were received from the floor as to the usefulness of a separate transport scale. It was concluded that there needs to be further work done regarding the EVTRAM severity scale to recognize its value for technical purposes. The results of work being undertaken under the auspices of the European Commission will be available next year.

The Working Group considers that continuous EVTRAM reporting is desirable, but realizes that this may not be manageable.

For SHIPTRAM database

The Working Group recommended the use of sampling techniques by those Member States who may have difficulty in collecting large amounts of data. The Working Group would however discuss this matter further.

Plenary was requested for advice on whether or not to include excepted packages in the scope of the SHIPTRAM database. Differing views were received from the floor and after some discussion it was concluded that the Working Group view to exclude excepted packages should be generally supported in order to avoid overextending available resources. This point may be revisited in the future, however.

For EXTRAM database

It was recognized that exposure data does not easily lend itself to collation in tabular format because much explanatory text was required. A new format was being discussed.

Plenary was adjourned at 12:45h; Working Group sessions resumed at 1400h.

Thursday, 23 October

The three Working Groups presented a summary of their deliberations since the last plenary session. A first draft of their reports was available for review. Discussions ensuing after each presentation are outlined in the following paragraphs.

For EVTRAM Database (Working Paper No. 15)

The Working Group intends to recommend the addition of guidance notes on the use of the data event input form, because many terms used are not self-explanatory, e.g. loss of criticality control.

For SHIPTRAM Database (Working Paper No. 16)

Package type and mode of transport are important parameters for this database. Radionuclide information has been excluded from the data collection because it was felt that this was too ambitious to collect. For the present, the Working Group suggests that attention be focussed instead on Transport Index, because this data can be used for evaluation of doses to workers and the population.

The Plenary requested that the Working Group indicate in its report that "the form being used for data collection" actually refers to the form by which it is expected that Member States will provide data to the IAEA.

Some further studies need to be made so that appropriate guidance can be developed regarding the sampling techniques that Member States can use to arrive at the necessary data.

Bearing in mind the objectives of the database, the Working Group will discuss further the amount of data that should be requested in the data input form. A consensus is needed on whether or not to include data that is desirable but difficult to obtain. It is necessary to motivate Member States to exert efforts to compile national data.

The Working Group will examine the need for a data input program to help Member States prepare their respective data for submission to the Agency.

For EXTRAM Database (Working Paper No. 14)

The Working Group will discuss the need to respect confidentiality and thus not require the identification of individuals and/or organizations.

The Working Group may consider the need to provide guidance on radiation measuring or assessment techniques, as part of formal reporting in the future. The priority at this stage is to obtain data from Member States.

The Working Group needs to clarify the first item in its Executive Summary, and to clarify the situation for industrial radiographers.

There was a discussion on the resource allocations necessary on the part of the IAEA for pursuing data collection activities; this will be considered by the Working Groups and by the TCM as a whole.

Plenary was adjourned at 10:30, and Working Group sessions resumed at 1100h.

Friday, 24 October

Plenary resumed at 09:05.

Plenary accepted Working Paper No. 18, which contains a summary of the discussions at Plenary for 20-23 October.

The three Working Groups presented a report of their deliberations. Discussions ensuing after each presentation are outlined in the following paragraphs.

For EVTRAM Database (Working Paper No. 15/Revision 1)

The main points of the presentation covered modifications to the data input form, the need for establishing points of contact in the Member States and within the Agency and the importance of distributing a data input program that minimises error in data entry.

The Working Group had identified some changes that were deemed necessary to improve the data input form. Such changes would have to be approved by TRANSSAC (at its third meeting scheduled for May 1998) before being implemented. The data input program that was being developed by Mr. P. Eyre (Canada) in co-operation with the Secretariat would need to be adjusted according to TRANSSAC's decision. It was pointed out that frequent changes do not go down well with those participating in the data collection activity and that stability is important. Additional changes may become necessary when the 1996 edition of the transport Regulations start to be implemented by the Member States. **It was therefore agreed that the data input form remain unchanged for the present, but that revision is anticipated in the future. The Secretariat will maintain records of Member States' suggestions for such improvements, and ensure that these be considered at an appropriate time in the future.**

One of the features of the data input program is "on-line help" which is intended to provide information on or an explanation of data required for each field. Mr. Eyre needs assistance in developing the text for this feature. The expertise required is more in the line of technical writing than computer programming. **The Secretariat should consider means for providing such assistance.**

Before the data input program can be provided to Member States for use in preparing EVTRAM data, the program needs to be tested at various sites where computer configurations and set-ups differ. This is to ascertain that settings (language, country, keyboard, date, time, number etc), routines and installation procedures function properly. Several delegates volunteered to participate in such a testing exercise. **The Secretariat will prepare test parameters and get in touch with the volunteers to undertake the test. Only if a satisfactory conclusion is achieved by testing can the data input program be distributed to Member States for use.**

The Working Group suggested a continuous data collecting period that coincides with the newly developed Review and Revision Process intended to keep the transport Regulations abreast of operating experience. A report based on the format of IAEA-TECDOC-966 but including conclusions that could be drawn from collected data could be published by the Secretariat at intervals of from three to five years. Such a report could also assess the appropriateness of EVTRAM for its stated objectives. **The Secretariat will consider the possibility of convening a meeting of experts involved in transport operations and statisticians after sufficient additional EVTRAM data has been collected to prepare such a report.**

The importance of designated contact points among the Member States and in the Secretariat for following up EVTRAM matters was underscored.

Regarding the severity rating being used in the EVTRAM data input form, **it was decided to accept the rating being used in the form but to be aware that work already underway elsewhere may need to be considered in the future.**

Working Paper No. 15 Revision 2 provides a complete record of the Working Group's work, reflects the above discussion at Plenary and is appended to this report.

For SHIPTRAM Database (Working Paper No. 16/Rev. 1)

The SHIPTRAM database is not at the same stage of development as the EVTRAM database but some Member States had conducted studies and new data was presented at this meeting. It was pointed out that IAEA data collection is intended for safety evaluation and NOT for risk assessment.

The Working Group provided a draft of the form by which shipment data is to be collected for the calendar year 2000, but noted that further work is needed before it can be sent to the Member States for completion. **The Secretariat should consider convening a meeting of experts whose task would be to develop the form so that it is clear and unmistakable what data is being required; it may be necessary to provide definitions for some terms that are not already defined in Safety Series No. 6.** For SHIPTRAM it is intended that "shipment" implies to all packages listed in a single shipping document. It would then be necessary to have a number of people test the form to ensure its clarity. Several delegates volunteered to participate in such a testing exercise.

At this stage, it is not possible to use various data input tools available from some Member States for IAEA purposes.

There were discussions at both the Working Group and Plenary level about the various criteria that can be used to determine the mode to be reported (time during which a shipment is being transported in a particalur mode, measure of physical distance, the mode involving most handling and proximity of shipment to persons, etc.). Because it is important to achieve consensus so that a starting point can be identified, Plenary accepted the Working Group's suggestion to use distance as the criterion for selecting the mode of shipment. This may not be the best choice, but this information can be obtained from shipping papers and the system can always be developed in the future.

The Working Group suggested that only fairly limited but quality data be collected, thus Member States will only be asked to provide data for consignments occurring within and originating from their own territory. This scope would at least minimize the chances of double-reporting. Data is expected to be provided for shipments in the nuclear fuel cycle because those are well-documented and readily available; it is not to be inferred that the risk arising from such shipments is higher than from non-nuclear fuel cycle shipments.

Areas in which additional effort would be required are:

1. **Developing guidance on sampling techniques for use by Member States who don't have national reporting systems for radioactive material shipments**
2. **Preparing advice on the amount of data that will be generated by a shipment data collection among Member States, how such data should be treated and the nature and contents of reports that can be generated from international data.**

Working Paper No. 16 Revision 2 provides a complete record of the Working Group's work, reflects the above discussion at Plenary and is appended to this report.

For EXTRAM Database (Working Paper No. 14/Revision 1)

It is clear from the requirements in ST-1 (the 1996 Edition of the transport Regulations) that radiation exposure data must be collected. The Working Group provided a list of data that Member States would be asked to provide for the period December 1998 through December 1999. However, it is not expected that such data fluctuates much from year to year, and so it is also possible for Member States to provide data that may already be available for other periods. In such a case, this must be indicated in the response sent to the Secretariat.

A limitation of this database is that it is not expected to provide a complete survey of exposures due to transport. It was noted that using EXTRAM data for risk assessment activities would need to be revisited in the future.

To ensure that the Member States clearly understand what data they are expected to provide for the EXTRAM database, the Secretariat should consider obtaining additional assistance in specifying the data, and formulating the request to Member States.

Working Paper No. 14 Revision 2 provides a complete record of the Working Group's work, reflects the above discussion at Plenary and is appended to this report.

Chairman's Report

A first draft of the Chairman's Report was presented and agreement obtained on its contents.

Other Matters

It was noted that linking of the transport safety databases would be a desirable objective. This would make possible the preparation of a single report showing the inter-relation of all data collected and documenting conclusively the safety of radioactive material transport. Such a report would be useful for the Secretariat as well as for all Member States. However, it was accepted that such developments could only be considered in the longer term.

The Technical Committee meeting was adjourned at 1250h.

Appendix 8
SUMMARY OF MEMBER STATES' PRESENTATIONS

Summary of Participants' Presentations regarding Current National Transport Data Collection Activities

MEMBER STATES INVITED	EVTRAM		SHIPTRAM		EXTRAM		REMARKS
	National reporting systems available	Can provide data to IAEA	National reporting systems available	Can provide data to IAEA	National reporting systems available	Can provide data to IAEA	
Australia							not represented
Austria	yes	yes	no	no	no	no	only in compliance with regulatory requirements
Argentina	yes	yes	yes	yes	yes	no	detailed explanation on file
Belgium							not represented
Brazil	no	yes	no	yes	no	no	
Canada	yes	yes	yes*	yes*	no	no	* in future
China	yes	no	yes	yes [1]	yes	yes [2]	[1] for non-nuclear fuel cycle [2] only for exclusive use shipments
Czech Rep.	Yes	yes	yes	yes*	no	no	*only for nuclear fuel cycle
Denmark							not represented
Egypt							not represented
France	yes	yes	yes	yes	yes	yes	
Germany	yes	yes	yes	yes	yes	yes	
Hungary	yes	yes*	yes	yes*	no	yes*	*can be provided with difficulty
India							not represented
Israel							not represented
Italy	no	yes	yes	yes	yes	yes	
Japan	no	yes	yes	yes*	no	no	*only for nuclear fuel cycle
Korea							not represented
Netherlands	no	yes	yes	yes	yes	yes	
New Zealand							
Poland	yes	yes	yes	yes	no	yes*	*can be provided with difficulty
Russian Fed.	yes	yes	yes	yes*	unknown	unknown	* can be provided with difficulty
South Africa							not represented
Spain							not represented
Sweden							not represented
Switzerland							not represented
UK	yes	yes	yes	*	yes	yes	*subject to IAEA advice
Ukraine							not represented
USA	no	unknown	no	no	no	no	

Member States' positions with regard to providing data are based on current systems and do not take account of the final recommendations of the TCM.

Appendix 9
REPORT OF WORKING GROUP on EVTRAM DATABASE

Working Group Members

Mr . J. Mayerhofer	Austria
Mr. P. Eyre	Canada
Mr. V. Duchacek	Czech Republic
Ms. F. Rancillac	France
Mr. G. Schwarz	Germany (Leader)
Mr. N. Usui	Japan
Mr. V. Ershov	Russian Federation
Mr . F. Ferate	USA
Mr. N. Barton	United Kingdom (Secretary)
Mr. I. van Gerwin	European Commission (20-22 October only)

1.Member State's purposes for IAEA data collection

Despite all measures taken to ensure a high safety standard in the transport of Radioactive Material (RAM) accidents and incidents can and do still inevitably occur for a number of reasons. There is however, a general understanding that the safety requirements embodied in the transport regulations adequately protect persons, property and the environment from the potentially adverse radiological impact of accidents and incidents i.e. limiting the magnitude and likelihood of such exposures

To substantiate this belief the Agency collects from member states information on accidents and incidents (events). This information has been collated in the Agency's database of events involving the transport of radioactive materials (EVTRAM). The agreed objectives of this effort are defined in IAEA-TECDOC-966 and are:

1. To assess the efficacy of regulatory standards for transport
2. To enhance the implementation of the IAEA Transport Regulations
3. To provide factual data to help meet public concerns
4. To provide data for future regulatory revisions and risk assessment activities, and
5. To allow full use to be made of any lessons learned as a result of any accident or incident

Based upon event data collected from 1984-1993 from 21 Member States a first review and analysis report (IAEA-TECDOC-966) has been published recently demonstrating the potential use and application of international transport experience to transport safety. Due to the inherent limitations in the available event data the information cannot be used to determine trends during the ten year period but give important examples of events occurring worldwide.

The working group has examined the material associated with, and information contained in the EVTRAM database and has discussed the findings and results presented in the first summary report with emphasis on the following topics:

1. Reviewing the objectives of EVTRAM as a source of information for continued development and maintenance of the Agency's transport regulations and the feasibility of using EVTRAM data in transport risk assessments.
2. Reviewing the use of the data input form (including evaluating the need for each data field) to ensure a consistent and uniform understanding of the data fields.
3. Improving the instructions for completing the data input form so that data collected in the future is prepared on the basis of a consistent and uniform understanding of the data fields.
4. Reviewing the user-interface tool, the data input program, with which Member States can be encouraged to prepare data for submission in electronic form to the Agency.
5. Preparing recommendations for an Agency action plan for continued development of EVTRAM towards wider-based collection and regular reporting.

Based on the deliberations and findings of the working group the principal objectives, scope and format of the EVTRAM database have been largely supported. The working group judged the EVTRAM database to be of significant importance for evaluation of transport safety especially regarding the type and nature of abnormal occurrences associated with RAM shipments, the revision and review process of the transport regulations and as a means of exchanging such information between member states and otherwise.

The discussion of the use and application of the EVTRAM analysis results by member states revealed some preference for lessons to be learnt (feedback of experience) from transport events. Along this line a lack of suitable information regarding corrective actions was identified. Further, the use and application of data derived from the EVTRAM database to meet the information needs of the public, the media, and decision makers was emphasised in the discussion.

Reservations were expressed however, with respect to the application of the current database for transport risk assessment. At best the current database could provide data for a qualitative safety assessment only. The use of EVTRAM for full risk assessment must remain in the future.

Areas of information where further refinements are required or are desirable are discussed in the subsequent sections.

2. Data to be collected by IAEA

It is recognised that the information collected from member states and collated in the EVTRAM database is a compromise between what may be desirable to meet the objectives of EVTRAM and what may be manageable given the resources available to member states. However, the principal benefits of having such an event reporting and analysis system are clearly acknowledged. There were comments and proposals on various aspects of the reporting procedure, the data collection form and difficulties encountered during its completion. These major aspects are listed below in the expectation that the burden of implementing changes in the system will be outweighed by the benefit gained.

2.1 List of data items to be collected

The types of incidents reported should include not only those incidents involving release of RAM and/or radiological consequences but all incidents, including minor ones with relevance

to transport safety. Incidents involving excepted packages need only be reported to the IAEA if of particular interest, as judged by the reporting member state.

The need for feedback regarding corrective actions taken was identified in Section 1 of this report. The narrative block 16 of the EVTRAM form mentions remedial action. However, it was felt that because of the importance of this in meeting objectives there should be a separate data field for corrective actions taken by member states to specific events.

Separate data fields for mode of transport and type of conveyance should be added to block 14.

Data fields for the UN dangerous goods identification number and schedule number based on the IAEA Regulations for the Safe Transport of Radioactive Material 1996 Edition (ST-1) should be included in block 17.

Concern was expressed regarding the severity level (item 1450). It was understood that the function of the transport severity scale is different from the INES scale. However, the two scales have a similar appearance. It was felt that if the transport scale were to be made available to a non expert audience then misunderstanding regarding the hazard involved with an incident could arise. Additional guidance should be provided to assist member states in their assessment of the severity level of events. If an additional severity scale, for use as a tool for communication with the media and public, were to be developed then this should be done in conjunction with the INES working group.

2.2 Basis for selection of data items

A crucial consideration for requesting specific data items is the ease of gathering such information by a member state's reporting organisation.

2.3 Form to be used for data collection

The discussion placed emphasis on some level of continuity of the request of information from member states and consequently no major changes are recommended to the existing EVTRAM transport event data form. Continuity is intended to encourage the reporting of events by member states.

Minor changes are detailed in section 2.1 and 2.4

2.4 Definition of terms in data collection form

Several data items were felt to be confusing and ambiguous:

1110 In many cases, such as incidents involving incorrectly labelled packages, it is unclear whether the location of the event refers to where the incident occurred or where it was discovered. More generally there are many events where the location of the event is unknown and the only information available is where it was discovered.

1130 There seems to be little reason for this section.

1150 The number of package types can be unclear. For example would two packages, both Type A but carrying different isotopes be one package type or two ?

1221 The addition of a field quoting the absolute increase in external radiation was discussed. It was realised that in some cases this would be a more appropriate measurement and other times a percentage increase would be more meaningful. For example if the normal dose rate was zero then an absolute increase would be more appropriate. The percentage increase however, is likely to be fairly independent of where the external dose rate is measured (e.g. surface or at 1m).

1230 An additional field quoting releases in terms of A_1 or A_2 values should be included.

1231 Ditto

1710 A larger number of options is needed to include, for example, Type C packages, UF_6 packages and Type B packages containing LDM.

1810 Material options should be added to cover materials such as Uranyl Nitrate, UF_6, UO_2 and plutonium.

1815 A separate classification for reprocessed uranium of various enrichments was suggested.

IAEA should provide more comprehensive guidance notes than those in Appendix I of TECDOC-966 to ensure consistency of approach. These notes should give guidance on the meaning of each data field. There should also be more guidance on the use of the severity scale. It is recommended that when the electronic data system is fully developed it will include a help facility for each data field that will be based on the notes in paper form.

2.5 Period of collection

2.5.1 Continuous, fixed period, etc.

The ideal period for event reporting would be continuous with events being reported as they occur, but the working group accepts that periodic event reporting may be the norm. The advantage of immediate reporting of events is that information could be collected whilst it was still readily available. People and organisations directly involved with the event could be consulted immediately rather than perhaps having to seek out information years later.

The working group recommends a reporting period of no more than about two years and consistent with the review and revision process for the regulations. This would aid the review process which was identified as one of the primary objectives.

2.5.2. Past, present, future

Not discussed

3.Roles of parties involved

The working group re-emphasised that establishment of an international event reporting and analysis system is a collaborative and interactive effort of the IAEA and its member states with clearly defined responsibilities for both parties involved. The benefits to the member states of having such a system in place are also evident but inevitably each system implies a level of engagement of member states commensurate with the principal objectives of the system. In other words, there is an urgent need to improve the efficiency of the event reporting and analysis system. The aspects and considerations brought up in the discussions to meet this goal included the following:

3.1.Member States

It was considered to be essential that each member state nominate a single point of contact with the responsibility to provide the information required for the EVTRAM database. This person or organisation need not necessarily be the competent authority; however, the point of contact should be appointed by the member state.

There was agreement that responsibility for reporting an event should lie with the Member State where the event occurred or was discovered. It was accepted that this might not always be possible because events can occur in non member states or in international waters, perhaps on board ships carrying a flag of convenience. In these circumstances it is accepted that the reporting would have to come from another source with the attendant danger of either double reporting or the event not being reported at all.

Information reported to the Agency via other routes should generally not be incorporated in the database to minimise the potential for double counting and other biases which may be associated with this approach.

3.2.IAEA

A contact point in the IAEA should be identified to whom information should be supplied and from whom advice could be sought. Currently this is thought to be the Transport Safety Unit.

To enhance the member states' response rate for EVTRAM the Agency may send reminder letters to all member states, especially those not represented at this TCM. The reminder letter should emphasise the benefits of having such a system in place and ask for identification of a point of contact (as discussed in Section 3.1) in each member state.

Completion and provision of a computerised data input programme to all member states was identified as a potential means for enhancing the efficiency of the event reporting and analysis system. It was noted that provision of a internationally agreed computerised input programme must involve a programme testing phase. The organisation of this programme testing phase is the responsibility of the Agency. The conducting of this phase is left to the Agency but will require a well organised programme to provide adequate quality assurance.

Group members indicated the Agency will need to allocate sufficient resources to carry out this additional effort.

3.3.International organisations (EU, ICAO, IMO, ILO, IFALPA, WHO, UPU, etc.)

The role of international organisations in relation to the operation and maintenance of the EVTRAM database was judged to be of less importance. Although it is generally known that event-related information may also be available at other organisations (e.g., ICAO and IMO) the type and format of information, however, is generally inconsistent with the data input requirement of EVTRAM. Also concerns with respect to double counting of events were expressed.

4. Procedures to be followed for data collection / transmission

4.1.Member States

4.1.1.Who should submit data

See previous section

4.1.2.Involvement of Competent Authority

See section 3.1

4.1.3.How frequently to submit data

See Section 2.5.1

4.1.4.How to submit data (formal covering letter?)

See 4.1.5

4.1.5.Format to be used for data transmission to IAEA

On EVTRAM data forms only, either paper or electronic (when fully tested and available)
With regard to email Member States are warned that transmission of data via the INTERNET is not secure and should only be used if they do not mind if data is seen by third parties.

4.2.IAEA

4.2.1.Periodic reminder to Member States?

See Section 3.2

4.2.2.From whom to accept data?

See Section 3.1

4.2.3.What kind of data will be accepted? (news reports? Or only formal data submissions on agreed data input forms)

EVTRAM data forms only (paper or electronic)

4.2.4.Frequency of updating main data file

On receipt of data from Member States.

5. Procedures for data management at IAEA

5.1.Computer security protocols

It is recommended that data regarding specific events should not be made available outside the IAEA, except to the contact point of the originating member state. Some members however, felt that limited access to event specific data could be allowed. One suggestion was to allow access to all data blocks except 10, 11 and the narratives which could allow identification of specific events. Another was the addition of a data field where a member state can permit its data be made available or require that it remain confidential. The working group recommends however, that in the immediate future complete confidentiality of specific events should be maintained. This implies that access to the event specific data and reports be stored so that access to the information is only available to IAEA authorised individuals and excludes, for example, general availability via the INTERNET.

5.2 IAEA to provide user-interface tool (data input program) to those who have indicated that they will provide ?; Member States to use data input program for transmitting data to ensure consistency in format?

See Section 3.2

5.3.Location of main data file

Electronic data and reports should be stored on a secure machine with restricted access. Data held on paper should be stored in a secure filing cabinet or similar.

5.4.Maintenance of data management platform

5.4.1 Staff requirements

Adequate resources (staff, funding and computing facilities) should be made available for collation and analyses of data and for the testing and development of the electronic data input programme.

6.Report management protocols

6.1 Frequency of reports

The discussion indicated that the frequency of updating the event related information and the publication of an analysis report (TECDOC) should be consistent with the review and revision period of the regulations. In any case the frequency of reports should be no less than every five years.

For some group members also a longer period between publication of analysis reports appears to be acceptable.

6.2.Form of reports

6.2.1.Written

Hard copies are currently the standard form of publishing and conveying information and it is envisaged that this will continue to be so.

6.2.2.On-line

Group members indicated that publication of the reports via the INTERNET may increase readership. However, adequate protection should be provided to minimise the risk of an outside body being able to alter the information

6.3 Scope of reports

6.3.1.Full

Not discussed

6.3.2.Partial

Not Discussed

6.4.Contents of reports

6.4.1.Extent of data analyses

The content of the analysis reports should be fairly broad because such a report represents the primary feedback of the Agency to its member states. It was judged not to be wise prematurely to delete statistical tables and cross tabulations currently incorporated in the analysis report.

The working group recommended that an advisory committee meeting should be convened in due time to assess and evaluate the effectiveness and usefulness of the statistical methods involved in the analysis of the EVTRAM data. Such a group should contain specialists in statistics and transport issues.

7. Project implementation timetable

The working group has identified a number of issues and topics that are believed to be crucial in improving the efficiency of the EVTRAM reporting and analysis system and to meet the principal system objectives. The working group recommends implementation of the proposals and suggestions related to the EVTRAM database consistent with the plan outlined below:

1. Revision and approval of the transport event reporting form.
2. Reminder letter to Member States asking for identification of a single point of contact with responsibility to report the event data, together with a request for regular reporting of events.
3. Member State assistance in the computerised data input programme development (and help function development)

4. Conduct of a computerised input programme test phase involving selected Member States.
5. Distribution of the IAEA authorised data input programme to all Member States.
6. Convening a specialist working group involving both statistics and transport experts with the aim of ensuring adequate quality assurance of feedback to Member State.
7. Development of a scheme of severity rating consistent with a revised INES scale

These activities relating to the revision of the data input form, development and testing of the electronic data input programme and improving member state participation should commence at the earliest possible time.

Appendix 10
REPORT OF WORKING GROUP ON SHIPTRAM DATABASE

Working Group Members

Mr. N. Bruno	Brazil
Mr. J. McLellan	Canada
Mr. J. Wang	China
Mr. S. Trivelloni	Italy (Leader)
Mr. H. Yagi	Japan
Mr. A. Pawlak	Poland
Mr. M. Syssoev	Russian Federation
Mr. J. Cook	USA (Secretary)

Executive Summary

Working Group 2 (WG2) considered the following information in the course of its deliberations:

Review of Working Paper	Section on SHIPTRAM
WP 2	para on SHIPTRAM sub 1. objectives 2. feasible data 3. user interface tools 4. rec for continued dev.
WP 3	2.1 dev of SHIPTRAM 2.2 Italian proposal 7.0 Survey chart of items on page 11
WP 5	whole paper
WP 8	whole paper
WP 9	whole paper
WP 10	Section 2, form
WP 11	Section III
WP 12	Appendix 1 excerpts from a report on Canadian Data Collection
WP 13	whole paper
IP 1	comments on SHIPTRAM
IP 3	whole paper
IP 5	Section 3, Attachment 3.1

IP 9	whole paper
IP 10	whole paper
IP 11	parts on SHIPTRAM
IP 12	whole paper
IP 13	whole paper
IP 14	whole paper
IP 17	comments on shipments
IP 18	comments on shipments
IP 20	sections on shipments
IP 21	section 4 of Introduction

Clearly, SHIPTRAM is not at the same level of development, and does not enjoy the same level of member state participation as EVTRAM. Recently, however, more Member States have been conducting shipment surveys. It is hoped that these recommendations will result in continued improvements in member state participation in SHIPTRAM. For this to occur, WG2 believes the data collection effort should be kept to a realistic level.

Although this report provides guidance on the types of shipment data of interest, it may be appropriate to convene a separate group to design the SHIPTRAM database system in more detail. This comment applies in particular to the forms to be used for data collection (see Section 2.3, Tables 1-4).

1. Member States' Purposes for IAEA SHIPTRAM Data Collection

WG2 finds that, the purposes for IAEA SHIPTRAM data collection are: to provide reliable and understandable information to public and organizations (numbers are viewed as being particularly useful in aiding public understanding of transportation activities) on the increasing number of RAM shipments; to assess the relative accuracy of member state shipment estimates; and to provide data on Member State shipments for use by international organizations in monitoring radioactive material shipments.

Objectives:

- Demonstrate efficacy of regulations
- Support revision of regulations
- Provide factual data to help meet public concerns
- Establish trends in transport activities
- Support compliance assurance (Identify transport activities for inspection)

At the present, risk assessments are not an objective of IAEA data collection activities. However, individual Member States may wish to collect data in addition to that identified here (e.g., distance, exposure, routes and associated population densities along those routes, etc.) in order to perform such assessments.

2. Data to be Collected by IAEA

The relative ease in collecting data varies widely among Member States. Some Member States have either compulsory or voluntary data collection systems that provide detailed data on virtually all shipments within the state. Other Member States have no systems in place, and must devise approaches to collect shipment data. One approach that might be considered, particularly in the Member States with a large number of shipments, is the use of samples in gathering shipment data. There is a concern that if different sampling techniques were used in different Member States, the compilation of summary data by IAEA might be negatively affected. It is therefore recommended that Member States employing sampling techniques include a basic description of the techniques employed to enable the IAEA to address this factor. It may be appropriate for IAEA to develop guidance on sampling techniques for Member States in the future.

2.1. List of data items to be collected

Data should be collected for fuel cycle and non-fuel cycle shipments. However, it should be noted that non-fuel data may prove more difficult for some Member States to provide.

The collection of shipment data for Excepted packages is not required because of the limited impact from the shipment of these packages and the difficulty in obtaining this information from some Member States. Member States who collect this information and wish to provide it to the IAEA may do so at their discretion, but Member States are under no obligation to do so.

With regard to the non-fuel data, transport of portable devices (e.g., gauges, radiography devices, etc.) should be included.

For fuel cycle and non-fuel cycle shipments, the following types of information are recommended for collection:

Number of shipments	(See Section 2.4)
Package Type	This is considered to be the parameter of most interest to the Member States.
Mode	The WG suggests the use of a single, primary mode designation for all shipments, including multi-modal shipments. It is recognized that this is not precise, but attempting to track the various modes is considered to be too ambitious for SHIPTRAM at this time.
Transport Index	This may be the most difficult parameter for which to provide data. However, this data would enable some evaluation of occupational and public exposures occurring during transport operations.

The following types of information are not recommended for collection at this time. Member States may provide this information to IAEA if they so choose. However, as mentioned in the discussion on Excepted packages above, members are under no obligation to do so.

Radionuclide	Lower priority than above mentioned items

Distance	Low priority as previously discussed
Activity/Mass	Lower priority than above mentioned items
Category of material	e.g., LSA/SCO, Fissile, etc.

2.2. Basis for selection of data items (what's needed and what's available from the Member States)

The selection of data items was based on a review of the purposes and objectives of SHIPTRAM, the results of the member state survey, and the level of member state response to previous requests for data. To be selected for inclusion, a data item needed to be necessary for fulfilling one of the objectives, to have been of interest to the Member States as indicated in the survey results, and to have been successfully captured in previous data collections.

2.3. Form to be used for data collection

The WG considered a number of forms described in the working and information papers for use in data collection, and concluded that a table would be the simplest form for the data collection effort, and least likely to introduce errors in the data collection process. The WG proposes four tables for data collection: Table 1, for the Number of Packages Shipped by Package Type; Table 2, for the Number of Packages Shipped by Mode; Table 3 for the Number of Shipments by Package Type; and Table 4, for the Number of Shipments by Mode. These Tables are based on those found in the attachment in Information Paper No. 9.

The Tables have been modified from the original to include, under the type of material, Non-fuel cycle material under each type of package (leftmost columns of Tables 1 and 3) or mode (leftmost columns of Tables 2 and 4). Note that Non-fuel cycle includes non-fuel cycle waste. The columns for transient and import shipments have been deleted from the Tables to reduce collection burden, and to avoid possible double counting of shipments among countries. If, however, import shipments are reconsigned with new shipping documents, upon receipt within a Member State and subsequently shipped, the latter shipment should be reported by the Member State in the appropriate Table. The columns for domestic and export in Tables 1 and 2 have been divided to include both the number of packages and the aggregate TI for those packages. Columns for row totals have also been added.

2.4. Definition of terms in data collection form

In general, the definition of terms used in the form may be found in the Regulations. In addition, the examples contained in Information Paper No. 11 should prove useful to those involved in data collection activities. The WG suggests that, for the purposes of data collection, the term "shipment" refers to the packages listed on a single shipping document.

2.5. Period of collection

Continuous, fixed period, etc.

WG2 proposes a fixed, one-year period of data collection (see Section 7.0). As noted previously, Member States are of course free to collect additional data, in this case for longer periods of time.

Past, current, future

Data should be collected in the future. The collection of data should be modified to reflect the implemntation in Member States of changes to the Regulations (ST-1).

3.0 Roles of Parties Involved

3.1 Member States

3.1.1 Competent authority

The Competent Authority is responsible providing data to IAEA. Each member state is free to assign roles and responsibility for developing procedures for data collection and transmission as they see fit. It would be a major benefit if a designated point of contact, who would be responsible for providing the data, could be established in each member state.

3.1.2 Offices/institutes providing data

See response to 3.1.1 above.

3.1.3 Offices/institutes who want access to the data but don't provide data

See response to 3.1.1 above.

3.2 IAEA

3.2.1 Scientific Secretary

The Scientific Secretary should be responsible for initiating the data collection, organizing the data collection effort, preparing the data collection procedures, compiling and analyzing the responses, and publishing the results. The Scientific Secretary may wish to suggest that the collection of shipment data be addressed in the Agency's Training Course on the Transportation of Radioactive Material.

3.2.2 Public information office

The public information office should receive a copy of the report and disseminate it upon request.

3.3 International organizations (EU, ICAO, IMO, ILO, IFALPA, WHO, UPU, etc)

The International organizations should receive copies of the report for their use in monitoring radioactive material shipments.

4.0 Procedures to be Followed for Data Collection / Transmission

4.1 Member States

4.1.1 Who should submit data

See item 3 above.

4.1.2 Involvement of Competent Authority

See item 3 above.

4.1.3 How frequently to submit data

Data should be submitted every 5 years (see Section 7.0)

4.1.4 How to submit data (formal covering letter?)

A cover letter should be use to send the data to IAEA.

4.1.5 Format to be used for data transmission to IAEA

Any of the following formats should be made available for use.

4.1.5.1 Data input form
4.1.5.2 Diskette
4.1.5.3 E-mail
4.1.5.4 File transfer protocol
4.1.5.5 INTERNET

4.2 IAEA

4.2.1 Periodic reminder to Member States?

See Section 2 above.

4.2.2 From whom to accept data?

See Section 2 above.

4.2.3 What kind of data will be accepted? (news reports? Or only formal data submissions on agreed data input forms)

Only formal data submissions on agreed data input forms should be accepted.

4.2.4 Frequency of updating main data file

See Section 7.0

5.0 Procedures for data management at IAEA

Unless specified below, WG 2 has no specific comment on these procedures; they generally should be left to the agency to decide.

5.1 Computer security protocols

5.1.1 Types of access

5.1.1.1 On-line
5.1.1.2 Copies of full or partial reports

5.1.2 Levels of on-line access

5.1.2.1 Enter data/send message
5.1.2.2 View all data
5.1.2.3 View partial data

5.1.3 On-line access registration

5.1.3.1 Designated staff members
5.1.3.1 Offices/institutes regularly providing data
5.1.3.3 Registered users (not necessarily only those offices providing data)
5.1.3.4 General public

5.2 IAEA to provide user-interface tool (data input program) to those who have indicated that they will provide data?; Member States to use data input program for transmitting data to ensure consistency in format?.

WG2 recognizes that user-interface tools exist in some Member States, but believes that these tools are not generally exportable at this time.

5.3 Location of main data file

The main data file, as well as other equipment needed to operate SHIPTRAM, should be procured and maintained by IAEA.

5.4 Maintenance of data management platform

As with the hardware described above, the maintenance of SHIPTRAM should be performed by IAEA.

5.5 Staff requirements

IAEA should allocate sufficient additional staff resources to operate and maintain SHIPTRAM.

6.0 Report Management Protocols

6.1 Frequency of reports

See section 7.0

6.2 Form of reports

6.2.1 Written
6.2.2 On-line

6.3 Scope of reports
6.3.1 Full
6.3.2 Partial

6.4 Contents of reports
6.4.1 Extent of data analyses

7.0 Project Implementation Timetable

WG2 proposes a five year cycle for SHIPTRAM data collection and report publication. For example, after the endorsement by TRANSSAC in 1998:

1998	-	IAEA sends request to Member States for data collection for shipment securing during calender year 2000
2001	-	Member States collect data for calendar year 2000
2002	-	Member States submit data to IAEA
2003	-	IAEA publishes data for 2000; Sends request for data for the next cycle

INTERNATIONAL ATOMIC ENERGY AGENCY
DIVISION OF RADIATION AND WASTE SAFETY
SHIPTRAM DATABASE DATA INPUT FORM

Table No. 1. Number of Packages by Package Type

Reporting Member State	**IAEA CODE**
Reporting Period	

For the purposes of this database, the following assumptions are made:
1. Non-irradiated material includes Pu, fabricated reactor fuel, ores and concentrates
2. Irradiated material includes all spent fuel (whether or not for reprocessing)
3. Non-fuel cycle includes non-fuel cycle waste

PACKAGE TYPE - Type of material	**NUMBER OF PACKAGES**				**TOTAL PACKAGES**
	Only within borders of the reporting Member State		Originating from the reporting Member State for export		
	No.	TRANSPORT INDEX	No.	TRANSPORT INDEX	
TYPE B(M) FUEL CYCLE - Non-irradiated material					
- U from processing					
- Irradiated material					
- Waste					
SUB-TOTAL, FUEL CYCLE					
NON-FUEL CYCLE					
TYPE B(U) FUEL CYCLE - Non-irradiated material					
- U from processing					
- Irradiated material					
- Waste					
SUB-TOTAL, FUEL CYCLE					
NON-FUEL CYCLE					
TYPE A FUEL CYCLE - Non-irradiated material					
- U from processing					
- Irradiated material					
- Waste					
SUB-TOTAL, FUEL CYCLE					
NON-FUEL CYCLE					
INDUSTRIAL FUEL CYCLE - Non-irradiated material					
- U from processing					
- Irradiated material					
- Waste					
SUB-TOTAL, FUEL CYCLE					
NON-FUEL CYCLE					
TOTAL, FUEL CYCLE					
TOTAL, NON-FUEL CYCLE					
TOTAL NO. OF PACKAGES					

INTERNATIONAL ATOMIC ENERGY AGENCY
DIVISION OF RADIATION AND WASTE SAFETY
SHIPTRAM DATABASE DATA INPUT FORM

Table No. 2. Number of Packages by Mode

Reporting Member State	**IAEA CODE**
Reporting Period	

For the purposes of this database, the following assumptions are made:
1. Non-irradiated material includes Pu, fabricated reactor fuel, ores and concentrates
2. Irradiated material includes all spent fuel (whether or not for reprocessing)
3. Non-fuel cycle includes non-fuel cycle waste

MODE - Type of material	**NUMBER OF PACKAGES**				**TOTAL PACKAGES**
	Only within borders of the reporting Member State		Originating from the reporting Member State for export		
	No.	TRANSPORT INDEX	No.	TRANSPORT INDEX	
AIR					
FUEL CYCLE					
- Non-irradiated material					
- U from processing					
- Irradiated material					
- Waste					
SUB-TOTAL, FUEL CYCLE					
NON-FUEL CYCLE					
SEA					
FUEL CYCLE					
- Non-irradiated material					
- U from processing					
- Irradiated material					
- Waste					
SUB-TOTAL, FUEL CYCLE					
NON-FUEL CYCLE					
RAIL					
FUEL CYCLE					
- Non-irradiated material					
- U from processing					
- Irradiated material					
- Waste					
SUB-TOTAL, FUEL CYCLE					
NON-FUEL CYCLE					
ROAD					
FUEL CYCLE					
- Non-irradiated material					
- U from processing					
- Irradiated material					
- Waste					
SUB-TOTAL, FUEL CYCLE					
NON-FUEL CYCLE					
TOTAL, FUEL CYCLE					
TOTAL, NON-FUEL CYCLE					
TOTAL NO. OF PACKAGES					

INTERNATIONAL ATOMIC ENERGY AGENCY
DIVISION OF RADIATION AND WASTE SAFETY
SHIPTRAM DATABASE DATA INPUT FORM

Table No. 3. Number of Shipments by Package Type

Reporting Member State	**IAEA CODE**
Reporting Period	

For the purposes of this database, the following assumptions are made:
1. Non-irradiated material includes Pu, fabricated reactor fuel, ores and concentrates
2. Irradiated material includes all spent fuel (whether or not for reprocessing)
3. Non-fuel cycle includes non-fuel cycle waste

PACKAGE TYPE - Type of material	**NUMBER OF SHIPMENTS**		**TOTAL SHIPMENTS**
	Only within borders of the reporting Member State	Originating from the reporting Member State for export	
TYPE B(M) FUEL CYCLE - Non-irradiated material			
- U from processing			
- Irradiated material			
- Waste			
SUB-TOTAL, FUEL CYCLE			
NON-FUEL CYCLE			
TYPE B(U) FUEL CYCLE - Non-irradiated material			
- U from processing			
- Irradiated material			
- Waste			
SUB-TOTAL, FUEL CYCLE			
NON-FUEL CYCLE			
TYPE A FUEL CYCLE - Non-irradiated material			
- U from processing			
- Irradiated material			
- Waste			
SUB-TOTAL, FUEL CYCLE			
NON-FUEL CYCLE			
INDUSTRIAL FUEL CYCLE - Non-irradiated material			
- U from processing			
- Irradiated material			
- Waste			
SUB-TOTAL, FUEL CYCLE			
NON-FUEL CYCLE			
TOTAL, FUEL CYCLE			
TOTAL, NON-FUEL CYCLE			
TOTAL NO. OF SHIPMENTS			

INTERNATIONAL ATOMIC ENERGY AGENCY
DIVISION OF RADIATION AND WASTE SAFETY
SHIPTRAM DATABASE DATA INPUT FORM

Table No. 4. Number of Shipments by Mode

Reporting Member State	IAEA CODE
Reporting Period	

For the purposes of this database, the following assumptions are made:
1. Non-irradiated material includes Pu, fabricated reactor fuel, ores and concentrates
2. Irradiated material includes all spent fuel (whether or not for reprocessing)
3. Non-fuel cycle includes non-fuel cycle waste

MODE - Type of material	NUMBER OF SHIPMENTS		TOTAL SHIPMENTS
	Only within borders of the reporting Member State	Originating from the reporting Member State for export	
AIR			
FUEL CYCLE			
- Non-irradiated material			
- U from processing			
- Irradiated material			
- Waste			
SUB-TOTAL, FUEL CYCLE			
NON-FUEL CYCLE			
SEA			
FUEL CYCLE			
- Non-irradiated material			
- U from processing			
- Irradiated material			
- Waste			
SUB-TOTAL, FUEL CYCLE			
NON-FUEL CYCLE			
RAIL			
FUEL CYCLE			
- Non-irradiated material			
- U from processing			
- Irradiated material			
- Waste			
SUB-TOTAL, FUEL CYCLE			
NON-FUEL CYCLE			
ROAD			
FUEL CYCLE			
- Non-irradiated material			
- U from processing			
- Irradiated material			
- Waste			
SUB-TOTAL, FUEL CYCLE			
NON-FUEL CYCLE			
TOTAL, FUEL CYCLE			
TOTAL, NON-FUEL CYCLE			
TOTAL NO. OF SHIPMENTS			

Appendix 11
REPORT OF WORKING GROUP ON EXTRAM DATABASE

Working Group Members

Mr. J. López-Vietri	Argentina
Mr. M. Cosack	Germany (Leader)
Mr. F. Golder	Hungary
Mr. J.F.A. van Hienen	Netherlands
Mr. M. Wangler	USA (Secretary)

Executive Summary

- The Agency should send to the Competent Authority of each Member State a letter that contains the objectives for collection of data; the letter should also emphasize that response to this request for data may satisfy paras 301 and 304 of ST-1 for assessing exposures.

- Over 70% of Member States responding to an Agency survey identified the collection of exposure data as a high or medium need.

- The data collected for the EXTRAM database should focus on those transport workers who are not otherwise engaged in transport or other duties at fixed facilities. However, to the extent that data may be available and obtainable for fixed facility transport workers, an attempt to collect the data is recommended.

- The method for collection and evaluation of exposure data will be determined by the Member State. The method for data collection may be an extensive gathering of exposure information or may use sampling techniques from which valid conclusions can be drawn from the data.

- For the first call for data it is anticipated that the time line for collection, review, and analysis of data, for Agency requests for clarification of submitted data, for Agency production and Member State review of the preliminary report, and Agency's publication of the final report will span about 3.5 years.

- If the Agency has an existing list of Member State reports that collect, compile and evaluate exposures of transport activities, it should provide this list to Member States in the letter requesting exposure data.

- Member States will be expected to submit an analysis of the data collected and summary of the conclusions. The Member State should not submit to the Agency reports that contain confidential information or other information that may be subject to laws protecting data.

- The Agency should publish the results of the EXTRAM Database in a TECDOC.

- The EXTRAM Database does not need to be electronic; the IAEA should expend no resources in developing a specific computerized database for exposures.

1.0 Member States' Purposes for IAEA Data Collection

- To assess the effectiveness of the regulatory standards for transport, especially as they relate to the effect of conveyance and package dose rates on public and worker radiation doses.
- To provide data for future regulatory revisions.
- To provide factual data to help meet public concerns.
- To exchange information with other Member States on the approaches for collecting and evaluating exposure data on transport activities.

2.0 Data to be Collected by IAEA

- The collection of data should be limited to transport activities.
- The primary transport worker population studied should be those workers who are employed by carriers and are not otherwise engaged in transportation activities at fixed facilities.
- Additionally, those workers, who are exposed to radiation because of their transport duties related to activities at fixed facilities, should be included to the extent that their exposures can be separated from their other activities that are not directly related to transport.
- Equally important, exposure to the public from all phases of transport of radioactive materials should be determined.
- Radiography workers and, to a similar extent, portable gauge users are special cases of transport worker because their exposures during transportation are inextricably linked to their normal duties. Additionally, the radiography camera or portable gauge is often the transport package. Because of the activity of the sources in the devices, particular attention should be given to the exposure of individuals who use them.
- The method for data collection may be an extensive gathering of exposure information or may use sampling techniques from which valid conclusions can be drawn from the data.
- The data submitted to the Agency may be either calculated or measured or a combination of calculations and measurements.

- The Member State should not submit to the Agency reports that contain confidential information or other information that may be subject to laws protecting data.

2.1 List of data items to be collected

- The Working Group considered the types of information that can be collected. Collection of essential information is critical to the EXTRAM Database effort and should be emphasized.

- On the other hand, optional information will be useful for the EXTRAM Database; however, these data may not be readily available; the Working Group felt that requiring the collection of optional information may be burden on some Member States and potentially delays development of a report.

Essential

- Annual dose to maximum-exposed transportation worker.

- Annual dose to maximum-exposed member of the public.

- Identification of critical group of transportation workers
  Examples of potential critical groups by type of packages handled:
  - Radiopharmaceutical
  - Radiography or portable gauge
  - Spent fuel and high-level waste
  - Low-level waste
  - Uranium or uranium compounds

- Identification of critical group of the public
  Examples of potential critical group by age and residence of individual
  - Adult, teen, child, infant, fetus
  - Urban, suburban, rural

- Identification of the mode of transport causing maximum exposures.

- Identification of measured and calculated doses.

- Description of techniques used to measure or calculate doses.

- Description of the main source of exposure.

Optional

- Estimate of number of workers and members of the public exposed.

- Estimate of collective doses to worker and member of the public by mode of transport.

- Estimate of size of the critical groups.
- Estimate of the collective dose to the critical groups.

2.2 Basis for selection of data items (what's needed and what's available from the Member States)

- Selection of data items satisfies purposes for data collection (See Item 1 above)

- Previously collected exposure data is likely to contain this information; data items should be available even with limited research or investigation capabilities.

2.3 Form to be used for data collection

- Short report providing the information described in Item 2.1 above; structure of form is determined by Item 4.1.5 below.

2.4 Definition of terms in data collection form

- Annual dose is the dose that a worker receives over a period of a calendar year.

- Collective dose is the total radiation dose incurred by a defined population, which is, for the purposes of this study, population of transport workers, the population of members of the public, and the critical groups of these two populations.

- Critical group of transport workers is that group of transport worker to which the maximum-exposed individual belongs. For this study, the transport worker group is identified by the type of packages handled and carried.

- Critical group of the public is that group of the general public to which the maximum-exposed individual belongs. For this study the member of the public group is identified by the age and residence of the individual.

- Member of the public is any individual in the population except those individuals who are subject to occupational radiation exposure.

- Transport worker is a worker engaged in the preparation and/or carriage of radioactive materials.

2.5 Period of collection

2.5.1 Continuous, fixed period, etc.

- Agency should send letters to Member States after approval at next TRANSSAC meeting.
- Agency should request that Member States submit data within one year; additionally, the Agency should diligently pursue receipt of data from all Member States.
- Agency should request this information at five year intervals thereafter.

2.5.2 Past, current, future

- Data to be collected, which may be historical, current, or future as deemed appropriate by the submitting agent, will be determined by each Member State.

3.0 Roles of Parties Involved

3.1 Member States

3.1.1 Competent authority

- The Member State's Competent Authority for radioactive materials transport should identify the single point of contact with which the Agency will communicate for purposes of collecting exposure data.

3.1.2 Offices/institutes providing data

- Other offices/institutes providing data will communicate through their identified Competent Authority for radioactive materials transport.
- Access to all other data by offices/institutes providing data will be at the discretion of their Competent Authority.

3.1.3 Offices/institutes who want access to the data but don't provide data

- Access to the data by offices/institutes not providing data will be at the discretion of their Competent Authority.

3.2 IAEA

3.2.1 Scientific Secretary

- Scientific Secretary will issue a letter to Member States requesting exposure data.
- Scientific Secretary will collect and compile exposure data.
- Scientific Secretary may arrange for consultant services to assist in evaluating the data received.
- After producing a preliminary report the Scientific Secretary will provide information on data, evaluations and other analyses to Member States for review prior to publication of the final document.
- Scientific Secretary will be responsible for establishing a quality assurance program for handling submitted data.

3.2.2 Public information office

- Public information office may provide evaluations and analyses to interested parties after recommendation by the Scientific Secretary.

3.3 International organizations (EU, ICAO, IMO, ILO, IFALPA, WHO, UPU, etc)

- Appropriate international organizations should be encouraged to participate by providing available exposure data and resources.

4. Procedures to be Followed for Data Collection/Transmission

4.1 Member States

4.1.1 Who should submit data

- See Item 3 above

4.1.2 Involvement of Competent Authority

- See Item 3 above

4.1.3 How frequently to submit data

- See Item 2 above

4.1.4 How to submit data (formal covering letter?)

- The Member State should submit a formal letter transmitting the data to the Agency.

4.1.5 Format to be used for data transmission to IAEA

- Any method for submitting data is appropriate following formal letter. The Member State report of data should contain a summary sheet, which identifies the results for the parameters listed in Item 2.1 above.

4.2 IAEA

4.2.1 Periodic reminder to Member States?

- See Item 2 above

4.2.2 From whom to accept data?

- See Item 3 above

4.2.3 What kind of data will be accepted? (news reports? Or only formal data submissions on agreed data input forms)

- See Item 2 above

4.2.4 Frequency of updating main data file

- See Item 2 above

5.0 Procedures for Data management at IAEA

- Since the Working Group has recommended that no specific computerized database be developed, responses in this section refer to the availability of online information.

5.1 Computer security protocols

5.1.1 Types of access

- At the recommendation of TRANSSAC and within Agency guidelines, the exposure report documented by Agency should be available on-line.
- Available copies should contain the full report and all summaries.

5.1.2 Levels of on-line access

- Copies of the report should be available on a general IAEA website for all parties.
- Raw input data should not be available for review online.

5.1.3 On-line access registration

- On-line access of the final report should be available to anyone; raw data and interim reports should not be available online.

5.2 IAEA to provide user-interface tool (data input program) to those who have indicated that they will provide data?; Member States to use data input program for transmitting data to ensure consistency in format?.

- This Item is not applicable since Member States will not be submitting data for input into a computerized database.

5.3 Location of main data file

- Location of the main data file will be determined by the Agency.

5.4 Maintenance of data management platform

- Because the collection of exposure data is expected to occur at 5 year intervals and will be in the form of file images of paper forms, and because no computerized database will be maintained, there will be few computerized resources needed for management of the data.

- Staff resources will be required for the periodic collection and evaluation of exposure data with potential support from consultant services.

6. Report management protocols

6.1 Frequency of reports

- Agency reports will be developed after each call for data, which is recommended to be at 5 year intervals.

6.2 Form of reports

6.2.1 Written

- Agency reports should be written since any report will be a compilation of Member State data, a discussion of the evaluation and results of the data collection, and preparation of an executive summary.

6.2.2 On-line

- The final written Agency report as published should be available at the Agency website.

6.3 Scope of reports

- The Agency report should report data on the full scope of the effort for collecting the data.

6.4 Contents of reports

6.4.1 Extent of data analyses

- The Agency report should provide a detailed compilation and analysis of data submitted by the Member States.

7.0 Project implementation timetable

7.1 Agree specification (time = 0)

- The Agency should obtain agreement on the specification of the type of data as recommended above at the next meeting of TRANSSAC.

7.2 Requests to Member States (+ ½ year)

- As provide by Item 2.5.1 above, the Agency should provide written requests to Member States within 6 months after TRANSSAC's approval

7.3 Data collection period (+1 year)

- The data will be collected by Member States and provided to the Agency within 1 year period as identified in Item 2.5.1 above.

7.4 Transmission to IAEA (time included in 7.3)

- See Item 7.3 above

7.5 Data available back to Member States, etc. (+1 year)

- The Agency should expeditiously compile and evaluate the data received from the Member States.
- The Agency should immediately ask the Member States for additional supporting information, if appropriate.
- The Agency should provide to the Member States for review a preliminary report on the data received.

7.6 Analysis and report (+¾ year)

- Member States should provide comments on the preliminary report to the Agency within 3 months after receipt of the report.
- The Agency will produce a final report within 6 months of receipt of Member States comments.

TIME LINE FOR PROJECT IMPLEMENTATION

Action		Deadline
7.1	Agree specification (next TRANSSAC Meeting)	May 1998
7.2	Requests to Member States	Dec 1998
7.3 7.4	Data collection period and Transmission to IAEA	Dec 1999
7.5	Data available back to Member States, etc.-Preliminary Agency Report	Dec 2000
7.6a	Analysis and report-Receipt of Member State's comments of preliminary report	Mar 2001
7.6b	Analysis and report-Final Agency Report	Oct 2001